

SPRING
2024

The Official Publication of the Water Environment Association of Utah

DIGESTED news

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2024 WEAU ANNUAL CONFERENCE

APRIL 23-26, 2024

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INSIDE:

[WEAU Membership Elections](#) | [What Does AI Know? \(About PFAS\)](#)



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- Trust
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Although accolades through the years and perseverance through tough times are certainly a credit to Sunrise's strength, neither defines the company's success nor feeds the company's future. It's the many engineers, technicians, and supporting staff who have embraced the entrepreneurial spirit of the company's founders. And it's the values that have permeated the Sunrise staff over decades of growth and expansion, along with their commitment to creating solutions that work and relationships that last.

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Sherry Sheffield


Passing the Golden Shovel

I can't believe almost a whole year has gone by since I became President of WEAU. What an amazing year it has been! I have enjoyed meeting so many of you and working with our extraordinary volunteers. I am reminded again and again that this association is only as good as its members – you truly make WEAU great!

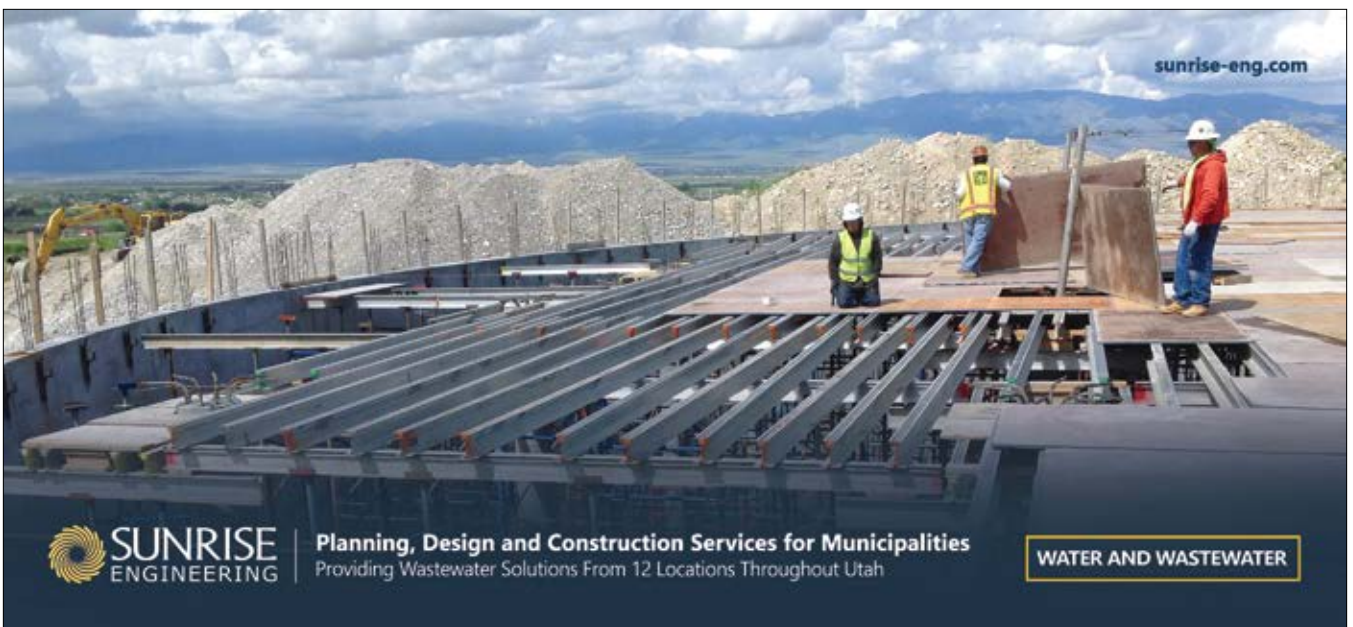
In the past year, we have built on past president Sarah Ward's excellent foundation to offer a Leadership Training Course that has been very successful. We will be starting another round of this course after the Annual Conference so keep your eyes peeled for an announcement. You won't want to miss this opportunity.

For years, it has been difficult for teams from southern Utah to participate in the Operations Challenge competition due to the difficulty of getting the practice equipment to them. This year, we purchased a second set of equipment for our southern members and we will be having two southern teams participate in the challenge. I hope you will all come to the Annual Conference and cheer on all of our teams.

In addition to investing in opportunities to serve as many of our members throughout the state as possible, we are also working with other organizations to educate each other and the public about the importance of what we do for the environment and our communities. We were able to have booths at the Intermountain Section of AWWA Annual Conference and at the Rural Water Association of Utah Annual conference to promote WEAU. IMS-AWWA and RWAU will have booths at our Annual Conference and I encourage each of you to stop by and talk to their representatives. We all play a part working with one of the most important resources on earth – water. By learning about what others do, we become better.

As I step down as President and pass the Golden Shovel to Chad Burrell, I want to say thank you for all you do for me, for WEAU, and for everyone around you. I could not have survived this year without you. I encourage all of you to stay active and engaged in WEAU and remember: Be part of something great! 

“ We all play a part working with one of the most important resources on earth – water. By learning about what others do, we become better.





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Space Cadet

Bryan Mansell

A few months ago, I had the chance to visit the Space Center Houston Museum and the NASA Johnson Space Center (aka 'Mission Control') in Houston, TX. It is definitely worthwhile and pretty moving to sit in the theater just outside the mission control room to watch a replay of all the visuals (i.e. computer screens and video) and sound recorded on July 20, 1969 when Neil Armstrong set foot on the moon. I highly recommend it if you're in the area.

While perusing around the incredible rockets they have on display and exploring the interior of the mock space shuttle, I paid notice to what must have been the 'potty area.' I couldn't help but wonder what it must be like to use the 'restroom' in space and how they manage that waste. I'll let you research that on your own, as I wouldn't want to spoil the fun. However, that idea led me along a train of thoughts regarding other things that would be interesting to do or try in outer space. Should I ever win the lottery and be wealthy enough to hitch a ride on a SpaceX contraption, I now have a list of things I'd like to try while I'm up there. Here is my space bucket list so far:

1. Poop in a vacuum tube while floating
2. Listen to Pink Floyd
3. Space-walk around the shuttle



4. Bungy jump from the shuttle
5. Play croquet
6. Use a jet pack (aka, space jazzy)
7. Play ping-pong
8. Play hide and seek in the ISS
9. Watch a movie from a stand-up sleeping bag
10. Three simultaneous intersecting keep-away games with one person in the middle
11. Test whether a goldfish can swim in zero gravity
12. Test whether a bird can fly in zero gravity
13. Play fetch with my dog
14. Wrestle one of my brothers in a space suit
15. Dust angel and long jump contest on the moon
16. Talk to someone named HAL
17. Use a telescope to stargaze and look at Earth
18. Watch a hurricane form
19. Release a marshmallow into the vacuum of space to see if it explodes
20. Send an SOS signal with my laser pointer at some far distant solar system

Each year it seems the idea of civilian space travel seems more and more within realm of reality. So, in case you get the chance, what's on your space bucket list? 🍑

FIND THE HIDDEN GOLDEN SLUDGE SHOVEL!*

Each quarter, *Digested News* has this golden sludge shovel icon hidden somewhere in the content of its pages.

Be the first to find it and email the editor (digestednews@weau.org) the correct page number to **win a \$25 Amazon Gift Card.**

Emails should include:

- Subject: I found the golden shovel
- Correct page number
- Your name and work address

Winners will be notified directly and named in the next issue of *Digested News*.

*For those of you new to WEAU, volunteers who give notable time and service to WEAU are awarded a "5S" golden lapel pin shovel. With that award, they become members of the **Select Society of Sanitary Sludge Shovelers**. WEAU is always looking for volunteers and maybe one day, you too can become a 5S member. 🍑



CONGRATS TO:
DUSTIN LEWIS OF SNYDERVILLE
BASIN WATER RECLAMATION
DISTRICT FOR FINDING THE
GOLDEN SHOVEL ON PAGE 11 OF
DIGESTED NEWS WINTER 2023.
ENJOY YOUR GIFT CARD!

Have feedback or suggestions? We'd love to hear from you about what parts of *Digested News* you find helpful, or about what you'd like to see. Email us at digestednews@weau.org.



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Collections College: Practice Exam 1

Submitted by Daniel M. Olson


1. **The formula for calculating the volume of a rectangular wet well is _____.**
 - A. $V = (L)(W)(C)$
 - B. $V = (L)(A)(P)$
 - C. $V = (L)(W)(H)$
 - D. $V = (L)(W)(D)$
2. **Check valves are used on the discharge side of centrifugal pumps to _____.**
 - A. Equalize the pressure on both sides of the impeller
 - B. Prevent water in the suction line from flowing back into the reservoir
 - C. Prevent water in discharge line from flowing back
 - D. Regulate the rate of water flow through the discharge pipe
3. **How does the area of a 42-inch sewer compare to a 21-inch sewer?**
 - A. 2.00 times larger
 - B. 3.14 times larger
 - C. 2.55 times larger
 - D. 4.00 times larger
4. **A lantern ring is a _____.**
 - A. Metal ring for lowering an explosive-gas detector candle into manholes and wet wells
 - B. Shaft coupling that has been completely worn through in spots or that has "daylighted"
 - C. Spacer ring in a pump packing gland to improve seat water distribution
 - D. Type of coupling for joining pipes that will not be covered or put in the dark for at least five days
5. **If a 36-inch pipe and 42-inch pipe are running full and meet at a manhole, what minimum size outlet pipe will be required?**
 - A. 56-inch
 - B. 44-inch
 - C. 71-inch
 - D. 78-inch
6. **Hydrogen sulfide is a toxic gas that smells like _____. At high concentrations of hydrogen sulfide, however, the sense of smell is deadened, and no odor is detected.**
 - A. Dead fish
 - B. Fuel gas
 - C. Rotten cabbage
 - D. Rotten eggs
7. **What capacity blower is required to ventilate a manhole 48-inches in diameter and 62-feet deep, if three air change(s) is(are) required every six minutes?**
 - A. 130 cfm
 - B. 389 cfm
 - C. 2336 cfm
 - D. 934 cfm
8. **A pH of 6.0 is _____.**
 - A. Acid
 - B. Alkaline
 - C. Neutral
 - D. Basic
9. **If a sewer must have a flow rate of 33 MGD with a velocity between 1.09 feet/second and 2.25 feet/second. What must the minimum size be?**
 - A. 65 inches
 - B. 93 inches
 - C. 92 inches
 - D. 64 inches
10. **The purpose of ribs on the outside of a Wayne Sewer Ball is to _____.**
 - A. Allow the ball's weight to be closer to the ball's center
 - B. Avoid patent infringement that would apply if a non-ribbed ball were used
 - C. Cause jet action to aid in the hydraulic flushing of the sewer line
 - D. Reinforce (strengthen) the ball
11. **A circular tank is 39-feet in diameter and 21-feet deep. If the tank is completely full and a 975 GPM pump is supplied, how long will it take to remove 11.5-feet of water from the tank?**
 - A. 4 hours, 23 minutes
 - B. 1 hours, 57 minutes
 - C. 1 hours, 45 minutes
 - D. 1 hours, 76 minutes
12. **Your chlorinator room should have an exhaust vent installed _____.**
 - A. Near the ceiling
 - B. Near the floor
 - C. Halfway up the wall
 - D. At the chlorinator bell jar
13. **Leakage of seal water around the packing on a centrifugal pump is required because it acts as a(n) _____.**
 - A. Adhesive
 - B. Coolant
 - C. Lubricant
 - D. Vapor Barrier
14. **The flushing water pressure in a water-lubricated wastewater pump should be _____ the pump discharge pressure.**
 - A. 10 psi less than
 - B. 5 psi less than
 - C. 5 psi more than
 - D. 10 psi more than
15. **A wet well is 10-feet deep by 17-feet in diameter. When the pump is not running, the water rises 31.0 inches in two minutes, 48 seconds. If the level rises 5.2-inches in 16.0 minutes while the pump is running, what is the pump rate in GPM?**
 - A. 1,612 gallons per minute
 - B. 1,520 gallons per minute
 - C. 1,797 gallons per minute
 - D. 9,209 gallons per minute

16. What factors should be considered when providing trench shoring?
 A. Grade of sewer
 B. Pipe material
 C. Structures or sources of vibration near trenches
 D. All of the above
17. Sewer "A" has 17,000 people at 95 GPCD. Sewer "B" has 13,800 people at 90 GPCD. Sewer "C" has 9,850 people at 85 GPCD. What percent of the flow is due to I&I if the total plant flow is 4.50 MGD?
 A. 21.5% B. 82.1%
 C. 65.7% D. 17.9%
18. Given the data below, what is the most likely cause of the lift station problem?
- Wet well inlet is normal.
 - Well drops normally when pump #1 is running.
 - Well level rises slowly when pump #2 or pump #3 is running
 - Run amperage is the same for all three pumps.
 - One of the pump motors turn backwards when off.
 - Level system is reading correctly.
 - Electrical controls are all in "automatic."
- A. Pump #1 and #2 are air-bound
 B. Pump #1 check valve stuck open
 C. Either pump #1 or #2 is wired backwards
 D. Check valve on pump #3 is clogged
19. Colored dye is dumped into a manhole. The dye first appears four minutes and six seconds later in a manhole 850 feet downstream and disappears five minutes and seven seconds after the dye was first dumped into the manhole. What is the velocity of the flow in the sewer?
 A. 2.77 feet per second
 B. 3.02 feet per second
 C. 3.46 feet per second
 D. 0.65 feet per second

20. Task least likely to be performed by collection systems personnel is _____.
 A. Cleaning sewer stoppages
 B. Making water connections
 C. Inspecting/testing manholes
 D. Maintaining collection systems equipment
21. When opening a power rodder properly, _____.
 A. Push the rodding tool into an obstruction and hold it there
 B. Rotate rod in one position
 C. Make sure all the torque is out of a broken rod
 D. Rod past dropped joints or through a crushed pipe
22. An electric motor is supplied by 480 V and 32 amps, given no loss, what horsepower can the motor supply to the water?
 A. 64.2 HP B. 2.0 HP
 C. 20.6 HP D. 30.9 HP
23. In keeping records, _____.
 A. Every test result should be included in an annual report
 B. Poor records are better than no records
 C. Records should be destroyed every two years
 D. Records should be kept up-to-date and maintained as long as they are useful
24. A 4160 V motor draws 21 amps. What is the brake horsepower if the pump is 85% efficient and the motor power factor is 0.91?
 A. 90.6 HP B. 117.1 HP
 C. 5.1 HP D. 106.6 HP
25. Which one of the following would not be considered a natural event?
 A. Explosion B. Flood
 C. Lightning D. Tornado 

Answers

23-D, 24-D, 25-A,
 12-B, 13-C, 14-C, 15-B, 16-C, 17-D, 18-B, 19-B, 20-B, 21-C, 22-C,
 1-C, 2-C, 3-D, 4-C, 5-A, 6-D, 7-B, 8-A, 9-A, 10-C, 11-C,



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Ops Quiz

By James Magill

- Chemical methods for removing nitrogen involve all of the following except _____?**
 - Ferric chloride coagulation
 - Ammonia stripping
 - Breakpoint chlorination
 - Aerated grit chamber
- Ammonia and trisodium phosphate may be added to your wastewater prior to biological treatment to _____?**
 - Condition the RAS
 - Correct a nutrient ratio imbalance
 - Allow for greater DO in water
 - Better settling
- RBCs can be rotated by all of the following except _____?**
 - Wastewater flow
 - Diffused air
 - Motor driven chain and sprocket
 - Gear reduced motors
- Your plant is removing BOD at an efficiency of 93%. If your final BOD is 13mg/L what was your influent BOD?**
 - 198.8mg/L
 - 185.7 mg/L
 - 192.5 mg/L
 - 203.4 mg/L
- How high of an alkalinity can a properly operated heated anaerobic digester have?**
 - 500 mg/L
 - 1000 mg/L
 - 2500 mg/L
 - 5000 mg/L
- What does ORP stand for?**
 - Oxidation reduction potential
 - Oxygen residual probe
 - Oxygen reclamation probe
 - Oxygen recirculation pump
- Fixed film bacteria can thrive in water with a pH as low as _____.**
 - 5.5
 - 3
 - 8.5
 - 7
- The flow is 1.3 cfs. What is the 24-hour flow?**
 - 112,320 GPD
 - 0.11 MGD
 - 0.84 MGD
 - 1.12 MGD
- Since reaction rates are lower during the winter months, the operator will _____.**
 - Decrease the DO level
 - Decrease the MCRT
 - Increase wasting
 - Increase the MCRT
- What happens to the quality of the effluent after ozone is added?**
 - The color and odor are increased
 - Color gets darker but the odor is neutral
 - The color improves and the odor decreases
 - Color is unaffected but the odor increases
- What are the two basic types of lime that can be used in the lime stabilization process?**
 - Hard lime and soft lime
 - Limestone and pebble lime
 - Calcium hydroxide and ferric chloride
 - Quick lime and hydrate lime
- A BOD sample can be removed from the incubator at five days plus or minus how many hours?**
 - One hour
 - Three hours
 - Five hours
 - Four hours
- In healthy active sludge plant which of the following organisms will be found in the greatest number?**
 - Stalked ciliates
 - Amoebas
 - Free swimming ciliates
 - Nymphs
- How many pounds of chlorine are needed to disinfect a 1000-foot-long pipe with a six-inch radius if a residual of 1 mg/L is required and your demand is 4 mg/L?**
 - 0.488 lbs
 - 2.44 lbs
 - 0.244 lbs
 - 4.88 lbs



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15. How many cubic feet of space in a manhole 3 feet in diameter and 12 feet deep?
 A. 99 cubic feet B. 972 cubic feet
 C. 170 cubic feet D. 85 cubic feet
16. Which adjustment will normally improve denitrification in a five-stage Bardenpho process?
 A. Increase the internal recycle rate
 B. Decrease the RAS
 C. Increase the DO
 D. Decrease the internal recycle rate
17. Which group of bacteria are responsible for converting nitrite to nitrate?
 A. Nitrosomonas B. Facultative
 C. Nitrobacter D. Heterotrophic
18. Which best describes the nitrification cycle?
 A. NO_3 is converted to NH_3
 B. NH_3 is converted to NO_2 then to NO_3
 C. NH_3 is converted to NO_3 then to NO_2
 D. NO_2 is converted to NH_3 then to NO_3
19. Water in motion that is suddenly stopped is called _____.
 A. Head pressure B. Net positive suction head
 C. Cavitation D. Water hammer
20. Which term is most related to vector attraction reduction in an aerobic digester?
 A. Settleometer B. F/M
 C. Sour D. Pathogen
21. Reviewing all aspects of the wastewater treatment system to determine what would occur during various emergency situations is known as a(n) _____.
 A. Environmental Audit
 B. Management effectiveness evaluation
 C. Comprehensive performance evaluation
 D. Vulnerability assessment
22. What size horsepower motor would you need to pump 1000 gpm at 55 psi, if you assume 100% efficiency?
 A. 35 HP B. 25 HP C. 7.5 HP D. 10 HP
23. pH is the measure of the activity of _____.
 A. Calcium ions B. Sodium ions
 C. Hydrogen ions D. Hydroxide ions
24. When performing an MPN, the sample dilution is considered positive when _____.
 A. The Durham tube is inverted
 B. Sample color changes from amber to brown
 C. No bubbles are found in the Durham tube
 D. Gas bubbles are found in the Durham tube
25. How many cubic yards of asphalt is needed for a 30-foot by 75-foot area. Lay the asphalt four inches thick _____.
 A. 750 cubic yards B. 65.2 cubic yards
 C. 333.3 cubic yards D. 27.8 cubic yards **DA**

Answers

C, 18-B, 19-D, 20-C, 21-D, 22-A, 23-C, 24-D, 25-D
 1-D, 2-B, 3-A, 4-B, 5-D, 6-A, 7-A, 8-C, 9-D, 10-C, 11-D, 12-B, 13-A, 14-C, 15-D, 16-A, 17-

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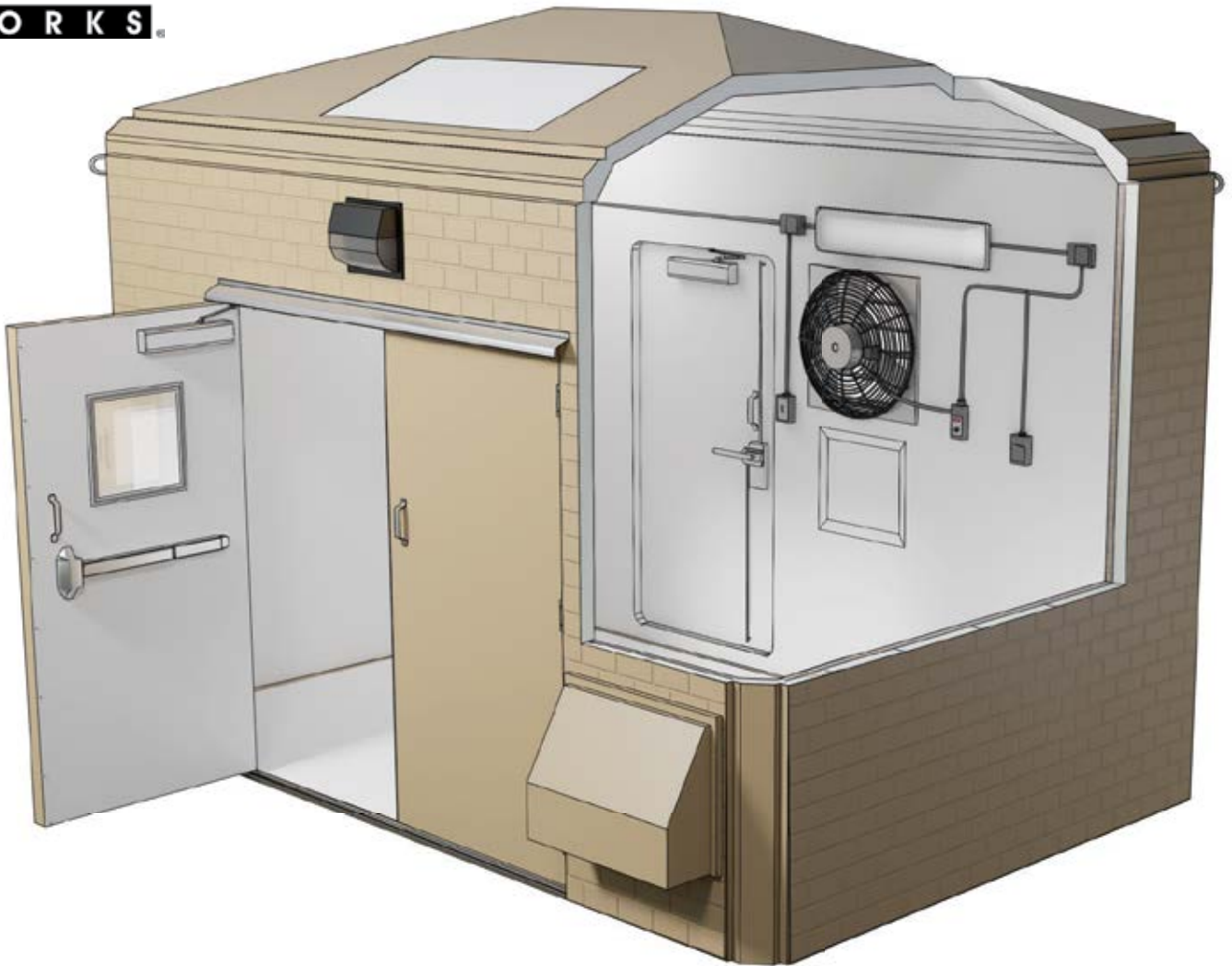
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Exciting Launch of the New Season

By Nate Cloward

As a new season unfolds, our anticipation is heightened, particularly for the Ops Challenge competition. WEAU has made significant investments in new equipment, a substantial portion of which has been dispatched to Southern Utah. This season welcomes new teams, including Ash Creek and St. George. We're pleased to announce that Ash Creek will be managing the equipment and providing a practice space for teams in the Southern area. We extend our gratitude for their participation and eagerly look forward to future collaborations.

Adding to the competition's diversity, the Young Professionals have enthusiastically decided to take part. This presents a wonderful opportunity for them, and we hope their experience is as enjoyable as ours.

A special acknowledgment goes to the Ops Challenge committee for their dedicated efforts in preparing for this season. The accumulation of a substantial amount of gear and the construction of a brand-new platform from the ground up are testament to their hard work. An exciting twist in the collections event involves teams assembling a small tower of piping using Victaulic pipe fittings, a departure from the traditional programming of a sampler. Observing the creative solutions teams devise for this new challenge promises to be a highlight of the competition. [D11](#)



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Operator Spotlight: Don Meunrath

By Nate Cloward

This quarter, I'd like to introduce a friend of mine – Don Meunrath. Don embodies the qualities of human nature that define an engaged individual. Despite being relatively new to the industry, he eagerly seeks participation and involvement, a trait that is warmly welcomed.

Don has been a valuable member of the Cottonwood Improvement District for three years, during which he achieved a grade II Collections Certification. With aspirations to reach the grade IV level, his dedication assures that he will attain this goal. Operating on the manhole level and managing the crew truck, Don's primary responsibilities include repairing manholes, excavating broken sewer lines, and contributing to general construction projects. Notably, he has represented Cottonwood in the Ops Challenge and also competed on the All-Star team at Nationals.

Beyond his professional achievements, Don has been happily married to his wife, Christine, for seven years, and together, they are proud parents to a son. They cherish family outings, with their annual trip to Lake Mojave being a particular highlight. During his leisure time, Don can be found at the gym, where he enjoys weightlifting – a passion he cultivated during his previous role as a personal fitness trainer.

I am genuinely excited about his future contributions to the organization. If you encounter him, take a moment to get to know him; it's worth your time. [Dm](#)



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YP Spotlight: Brandon Tremelling

Background

Hometown: Cedar City, UT

Education: B.S. Civil Engineering,
University of Texas at Austin

Career

- Project Engineer at Jones & Associates Consulting Engineers
- Technical Resource Engineer at Geneva Pipe and Precast

Industry Involvement

- USWAC Chair (2021)
- APWA, Utah Chapter Legislative Advocacy Committee Chair (2020-2023)
- Mountain States Concrete Pipe Association Board Member (2022-Present)

About Brandon

"I have two awesome daughters, ages six and four, an incredible wife, and an adorable puppy. Some of my favorite hobbies include hiking, camping, river rafting, and playing Dungeons and Dragons with my family." [on](#)



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WEAU Young Professionals 2024 Annual Conference Events

TUESDAY, APRIL 23RD

BIKE & HIKE | 1:30PM – 4:30PM | Dixie Convention Center

Join the YPs and fellow WEAU members for a RMNASTT sponsored mountain bike ride or nearby hike. Meet us at the Dixie Convention Center at 1:30pm for a boxed lunch and to coordinate carpools. We will depart for the outdoor activities around 2:00pm. **Please RSVP on the RMNASTT website.** Note that if you are attending the bike ride, you will need to provide your own equipment.

WEDNESDAY, APRIL 24TH

NETWORKING LUNCH | 12:00PM – 1:30PM | Dixie Convention Center

Grab some lunch in the exhibit hall at the conference center and look for round tables labeled “Young Professionals” to network and play a short game with YPs.

YP & OPS CHALLENGE SOCIAL | 6:00PM – 8:00PM | BigShots Golf

We are thrilled to host this year’s Young Professionals Social in conjunction with the Ops Challenge team members and volunteers! Join us for 2 hours of game play, dinner, and dessert. **Registration is required in order to attend.** Please visit the WEAU website for registration details. Event registration is limited so sign up early to secure your spot. **Registration will close on Tues 4/16.**

THURSDAY, APRIL 25TH

NETWORKING LUNCH | 12:00PM – 1:30PM | Dixie Convention Center

Grab some lunch in the exhibit hall at the conference center and look for round tables labeled “Young Professionals” to network and play a short game with YPs.

FRIDAY, APRIL 26TH

YP TECHNICAL TRACK | 8:30AM – 10:30AM | Dixie Convention Center

Young Professionals Co-Chairs Katie Reams and Lauren Schmidt will be presenting in back-to-back technical sessions at the conference on “Harnessing the Power of the YP” and “Harnessing the Power of Connection”. We invite you to attend their interactive presentations to show your support and attend the student presentation that will follow.



Questions about an event? Need a ride? Want to volunteer?
Contact Katie and Lauren at yp@weau.org



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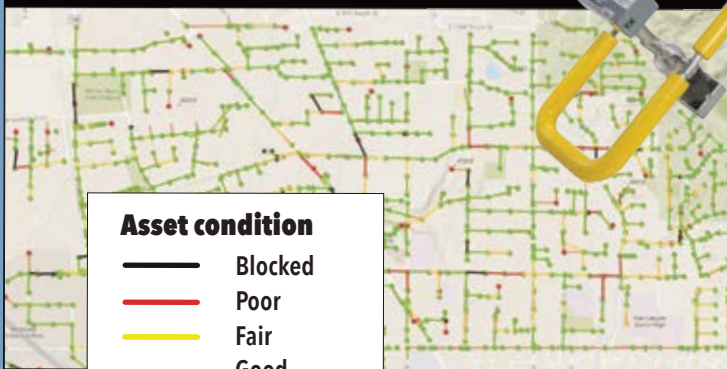
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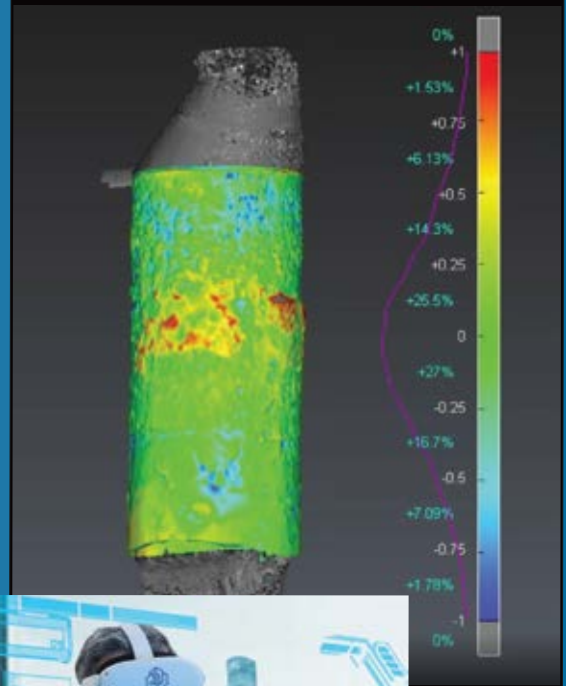
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1. Pipe Flow



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|-----------------|---------|
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| — | Good |

2. Manhole Virtualization



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Are You Facing These Problems?

In our country today, these four dynamics are making it harder than ever to maintain wastewater collection systems:

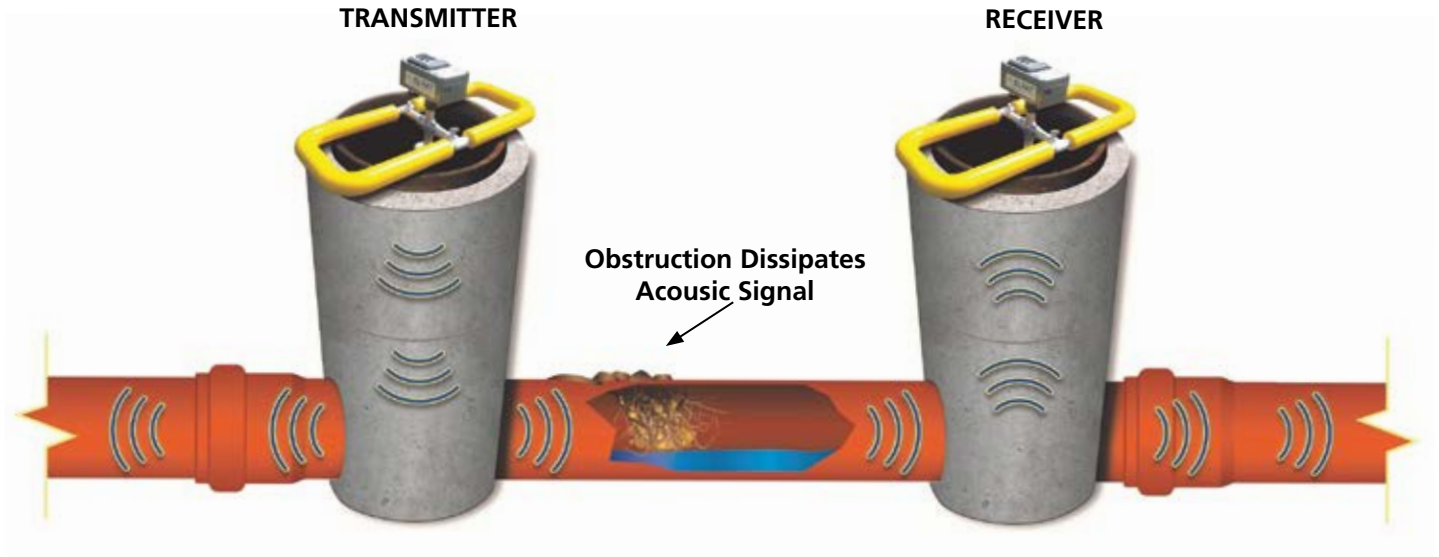
- 1) Systems are growing in size due to population growth
- 2) Structures are aging
- 3) Staff are leaving due to retirement or other opportunities
- 4) Owners can't find people to hire due to staffing shortages

Are you facing any of these dynamics in your collection system? If so, you are not alone. Most of the cities and districts in the country are impacted by one or more of these issues, making it more difficult than ever to properly maintain a wastewater collection system.

The Good News

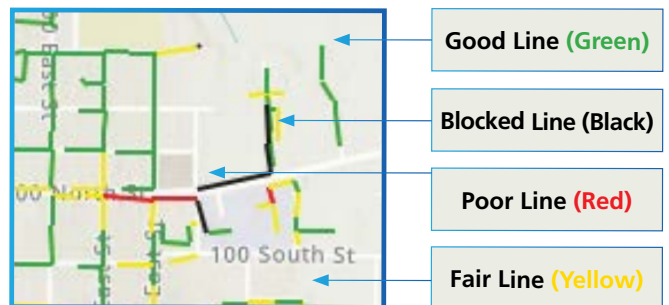
The good news is that there is a new way to maintain collection systems, which uses new technology that can double your capacity and reduce your workload. This technology is called Acoustic Sewer Assessment and it is rapidly growing as the new best practice for maintaining wastewater collection systems.

Acoustic Sewer Assessments use sound to locate where pipes may have restricted flow. The tool used for this is called the Sewer Line Rapid Assessment Tool or SL-RAT. This is a two-part tool consisting of a transmitter and a receiver. The transmitter is placed on one manhole and sends specialized tones into the pipes. The receiver is placed on an adjacent manhole and listens for the tones. And within 80 seconds, the tools can identify if there is something in the pipe that will restrict flow.



RH Borden Can Help

RH Borden and Company is the authorized service provider for Acoustic Assessments in the Western United States. They have field crews that use the SL-RAT to collect the acoustic data from your collection system. When finished, they deliver this data in a full system GIS Map (see example below). This map makes it easy to see where cleaning and camera are needed and where they are not. The good news is that typically only 10% of pipes need to be cleaned, and the SL-RAT can identify where these 10% of dirty pipes are located. This enables you to stop cleaning pipe that is already clean! This can offload a significant portion of unnecessary work, and give you the capacity to do many other things with your resources.



Reach out to RH Borden (rhborden.com) and start using Acoustic Assessments today! It will increase your capacity, reduce your workload, improve your maintenance program, and help you achieve the best results for your system!

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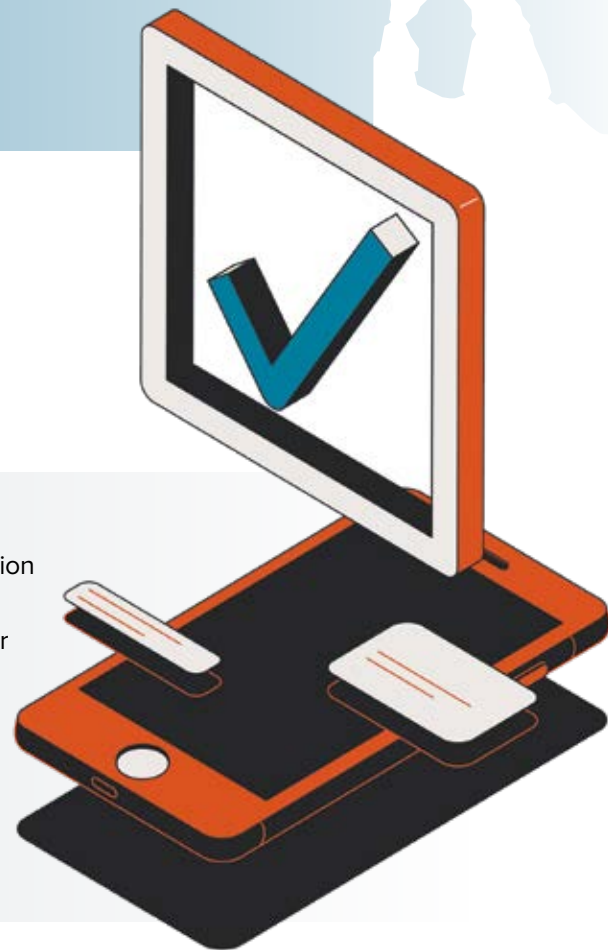


2024 WEAU

MEMBERSHIP ELECTIONS

The WEAU would like your continued support in voting for those that will help lead and direct this great volunteer organization. In preparation for the elections going out we wanted to help you to get to know those that are in current positions as well as those that will be up for election or re-election. Below are pictures and short bios for these representatives so you can get to know them. Look for the Ballots which will be coming out soon electronically through your email.

Sincerely,
WEAU Executive Board



UP FOR ELECTION: President

Chad Burrell

Chad is the Operations and Safety Manager for Snyderville Basin Water Reclamation District. He has worked 24 years in the wastewater industry with experience in Pretreatment, Biosolids, and Operations, and has enjoyed every moment. Having served in several roles with WEAU he has grown to value the relationships he has made with those in this industry and has always looked for ways to promote and encourage the education of others that are both in the wastewater industry and those looking into it. In personal life, Chad has been married for 25 years to his wife, Marcy, and they have one daughter (and one son-in-law) and four sons (with one daughter-in-law). As a family they enjoy the outdoors, their small farm life, and rebuilding anything with an engine in their garage!



UP FOR ELECTION: President Elect

Steve Myers

Steve is a registered professional engineer in the state of Utah and has been involved in water and wastewater industry his whole career. He cut his teeth mowing lawns at Central Davis Sewer, where he cooled off in the mist coming from the trickling filters. Since then, he has worked as a design engineer locally with a couple firms and then transitions to the equipment supplier space where he spent time with Ovivo and now with Hach. He resides in Farmington, UT, with his wife and five kids. For fun, he enjoys boating, electronics and technology, all racquet sports, and hiking up the mountain right behind his house – if only to just escape from the mayhem due to the aforementioned five kids.



2024 WEAU Membership Elections

Past President

Sherry Sheffield

Sherry Sheffield began her career in wastewater treatment when she was hired over 15 years ago at South Valley Water Reclamation Facility as a laboratory analyst. She became active in WEAU soon after that when she volunteered to be a judge for the Awards Committee. She continued her involvement by serving on the Lab and YP Committees, as the Lab Committee Chair, and as a Director on the Board. Through the years, she has been very involved in the Operator's Challenge both as a competitor and a judge. She served as a WEF Delegate for three years and has enjoyed the opportunity to work with wastewater professionals from around the nation as well as Utah. She believes that the best thing about WEAU is having the opportunity to network with a variety of wonderful people all working towards the same end goal. She has eight siblings, 29 nieces and nephews, and eight great-nieces and nephews. When not working, she loves spending time with her family, watching professional golf, and reading books.



UP FOR ELECTION: Vice President

Gary Vance

I first became involved with WEAU back in 2007, volunteering for the Young Professionals committee. Other duties over the years have included organizing the student design competition and chairing the Annual Conference Committee. I have served on the Board for four years now, two as a director and two as the secretary. My involvement with WEAU has been a great experience and has provided me the opportunity to get to know many terrific people in this industry. Like anything in life, you get out of it what you put into it.

I received my undergraduate degree from the University of Idaho and my MS in Civil/Environmental Engineering from the University of Colorado. After that, I served in the Peace Corps in the Dominican Republic, designing and constructing gravity fed drinking water systems for more than two years. I've been in Utah for the past 17 years, working as a program manager for wastewater treatment projects with J-U-B Engineers. I have many hobbies including hiking, camping, and skiing. I have two kids and we love exploring the southern Utah red rock country and visiting/working on our cabin up at Bear Lake. I also enjoy fishing, playing soccer, music, and traveling.



UP FOR ELECTION: Secretary

Brandon Wyatt

Brandon Wyatt is a Principal Engineer with Bowen Collins & Associates (BC&A) in Draper, UT. He was raised in Las Vegas, NV and attended Utah State University where he earned his degrees in civil and environmental engineering. His early career included stints as a laborer, framer, telemarketer, surveyor, and draftsman. Brandon has worked for BC&A for 14 years. When he's not at work, he enjoys the outdoors and his family. He's most happy when he can combine the two in family camping, hunting, or fishing trips. A member of WEAU since 2013, Brandon has been part of the Mid-Year Conference Planning Committee and the Annual Conference Planning Committee. His favorite part of WEAU is getting to meet all the great people in the industry and he is constantly amazed at the dedication, skills, and talents of those who are part of the organization.





UP FOR ELECTION: WEF Delegate

Sarah Ward

If you are reading the election bios, thank you for making it to mine. I am Sarah Ward; many still refer to me as Sarah Leavitt, which I will respond to as well. I am blessed with a tall, handsome husband, an amazing son, and three bonus daughters. I enjoy spending time with family and creating memories. My WEAU experience began in 2007 when I became a member. My main objective in becoming a member was to attend Pretreatment training to learn from the experts. Shortly later, I was asked to join the Pretreatment Committee. In 2011, I became the Pretreatment Co-Chair and then rolled into the Chair position in 2013. In 2016, I was elected as a Director on the WEAU board. I was elected Vice-President in 2020, President-Elect in 2021, President in 2022, and rolled into the Past President role in 2023. Serving on WEAU Committees and being involved on the Board has been a great experience. I recommend anyone to become involved in WEAU. It is an organization that allows you to learn, network, and build leadership skills, and you get to know so many wastewater and pretreatment professionals from around the state.



UP FOR ELECTION: Director

Nate Cloward Running Against Josh Hunsaker

Nate Cloward

Nate began working for Central Davis Sewer District at the age of 15 doing part time groundskeeping work and helping water the sod and alfalfa fields. After several years of part time work, he became employed full time as an operator. He has currently been an operator for over 15 years. He has earned both a Treatment IV and Collections IV unrestricted certifications. He has an associate degree from Weber State University and a certificate from Davis Technical College in the Automation Technology department as a Process Control Technician.

He has participated with three Operations Challenge teams including competing once in Nationals. At Central Davis Sewer, he is the Operations Manager. He manages and supervises both plant, and collections system operators.

Nate and his wife, Nicolette, have two young boys seven-year-old Donovan and five-year-old Bronson. He enjoys riding bikes with his boys and going on family camping trips in the summer. He also enjoys fishing with his dad on their boat and bow hunting wild hogs in Texas.



Josh Hunsaker

Josh grew up around some of the state's greatest leaders in the industry and recognized the importance of service they were providing. Josh has been with CVWRF for over 20 years. Josh was an operator for 11 years then went to maintenance for three years was then promoted to Biosolids Supervisor and since joined the Operations Supervisor team. Josh has the great opportunity of supervising the best group of people ever known. Josh has passed all the Treatment and Maintenance Certifications. Josh joined WEAU on January 1, 2004. Josh started participating in Operations Challenge in 2008. Josh has competed for many years at the state level and national level and has been a judge at operations events. Josh was also the Operations Chair for two years. During this time, he has been able to meet many people around the state and the country. This has helped broaden the network the association provides. The comradery amongst the members as well as the knowledge passed along in the training courses is very valuable. Josh is married to his wonderful wife Miki for 20 years and they have three children Savannah (24), Tayden (20), and Mayson (19). Josh loves spending time with his family traveling, camping, riding UTV's and hunting. Josh's greatest achievement is his family, along with his career.



2024 WEAU Membership Elections

UP FOR ELECTION: Director

Tiffini Adams Running Against Katie Reams

Tiffini Adams

Tiffini Adams has been involved with WEAU for the past 20 years and can usually be found judging the Laboratory Event, both locally and at WEFTEC, or greeting people at the conference registration desk. She took a turn as a member of Central Valley's Wasted Gas challenge team and got to compete at WEFTEC. She has been involved with the Mid Year and Annual Conference planning for many years, too. She is a proud member of the 5S club. Tiffini spent 14 years as the quality assurance officer at Central Valley, South Valley Water, and Jordan Basin Water Reclamation Districts and enjoyed the friendships and connections at each plant. She has been the Laboratory Director at Snyderville Basin Water Reclamation District since 2017. She and her husband Carl have been together for 30 years and have two kiddos, Wiley and Pamela, who are off adulting near and far. They are looking forward to camping in their Casita and kayaking out on the many lakes and rivers that we all strive to preserve.



Katie Reams

Katie Reams is a licensed project engineer at J-U-B Engineers in Kaysville, UT with over 10 years of experience in designing water and wastewater treatment solutions. She has served communities across the country, including Northern Utah, while accompanying her husband's Active-Duty Air Force career. After moving to Utah in 2019, Katie immediately became involved with WEAU through Young Professionals (YPs) and currently serves as the Young Professionals Co-Chair and an editor for Digested News. Her favorite part of WEAU is meeting the people who truly care about improving the quality of life for those living in Utah. In both professional and extracurricular activities, Katie finds her strengths in creating meaningful relationships and connecting with people around her.

Katie is also an active member and the Outreach/Mentorship Director for Utah Women of Water (WoW), with a true passion for supporting women in the water/wastewater industry. If selected as a Director for WEAU, Katie intends to bring her energy and enthusiasm she has developed from her time with the YPs and WoW to the WEAU Board. She plans to be persistent in growing WEAU membership and providing a multitude of opportunities for professional growth of association members. In her free time, you can find Katie walking her dogs on one of Utah's many beautiful trails or spending time with her family at home.



PWO Representative

James McGill

I have worked at Central Valley Water Reclamation Facility for 11 years. I hold a Grade 4 Wastewater Certificate and a Grade 3 Plant Maintenance Tech. Currently, I am a Grade 4 Mechanic and I work in multiple areas. I have also been on the challenge team three times and on the all-star team once to compete at WEFTEC.

Early in my career I presented multiple times at the Annual Conference and at the Mid-Year Conference. I have been married for 32 years now and have two kids, ages 30 and 28. I also umpire men's and girl's fast pitch softball from high school level and up. I enjoy camping, hunting, and spending time with family and friends.





UP FOR ELECTION: PWO Representative Elect

Taylor Byrum Running Against John Bryan

Taylor Byrum


I work in the maintenance department, as an Apprentice Electrician, for North Davis Sewer District. Seven years ago, when I started as a treatment plant operator, I decided that I wanted to make my career in this industry, I have gone back to school to help me reach my working goals. One of my favorite things to do is participate in the Operations Challenge. I have been involved for five years, and have competed at Nationals twice, with the Wasatch All Stars. During conferences, I enjoy getting to know others just as much as I enjoy competing. In my spare time, I like spending time with my wife and three kids. I enjoy sports of all kinds, camping, fishing, and just about anything outdoors.



John Bryan

My name is John Thomas Bryan III. I am relatively new to the wastewater industry, but I am very much committed to learning and growing in my new-found career. I started my working career as an adolescent in Denver, CO, working in restaurants and bars. I've always been a "work your way to the top" type of person. Starting as a dishwasher and working my way over the years to general manager of a restaurant and wine bar in Colorado. Eventually, my family and I decided to move to Utah in 2016. I started a new career at Harmon's as a simple counter helper in the meat department helping customers pick their dinner daily. I quickly worked my way up to Journeyman Butcher and Department Manager. After successfully running several Meat Departments for the company, I was interested in finding a more meaningful and beneficial career working for the City. I landed at the WRF in Salt Lake City.



I'm the type of person who is all in when I find my path, so I acquired my Wastewater Grade II certification within six months of hire and attempted my Grade IV one month later. I was only a couple percentage points from passing my Grade IV the first time, so I have a bit more studying to do, but I have always been a "big picture" kind of person. I like to take a step back and figure out how each piece fits into the whole puzzle. I would be honored if you voted for me to be on the board. I am dedicated to water treatment and excited about the newfound journey ahead. Thank you for the nomination and hope to see you on the board! 

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2024 WEAU ANNUAL CONFERENCE

APRIL 23-26, 2024
DIXIE CENTER,
ST. GEORGE, UT



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www.weau.org/annual_conference



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CONFERENCE-AT-A-GLANCE

TUESDAY, APRIL 23, 2024

| | |
|------------------|---|
| 7:00 am-4:00 pm | Registration |
| 8:00 am-12:30 pm | Pre-Conference Workshop (<i>Ballroom</i>) |
| 9:00 am-5:00 pm | Vendor Setup |
| 10:00 am-3:00 pm | Ops Challenge Setup |
| 1:00 pm | Water Quality Board Meeting (<i>Ballroom</i>) |
| 1:30 pm-4:30 pm | NASTT and Young Professionals Hike/ Mountain Bike Ride (<i>meet at Dixie Center</i>) |
| 1:30 pm-5:30 pm | Golf Tournament |
| TBD | Ops Challenge Process Test |

WEDNESDAY, APRIL 24, 2024

| | |
|------------------------|--|
| 8:00 am-5:00 pm | Registration |
| 8:00 am-4:00 pm | Operator Challenge (<i>Exhibit Hall</i>) |
| 8:00 am-5:00 pm | Exhibit Hall Open |
| 12:00 pm-1:20 pm | Opening Luncheon (<i>Exhibit Hall</i>) |
| 1:30 pm-5:00 pm | Technical Session A |
| 1:30 pm-2:10 pm | Technical Sessions A-1 |
| 2:15 pm-2:55 pm | Technical Sessions A-2 |
| 3:00 pm-3:30 pm | Break (<i>Exhibit Hall</i>) |
| 3:35 pm-4:15 pm | Technical Sessions A-3 |
| 4:20 pm-5:00 pm | Technical Sessions A-4 |
| 6:00 pm-8:00 pm | Combined Operator's Challenge and Young Professional Social (<i>Big Shots Golf</i>) |

THURSDAY, APRIL 25, 2024

| | |
|-------------------------|--|
| 8:00 am-4:00 pm | Registration |
| 8:00 am-3:30 pm | Exhibit Hall Open |
| 8:30 am-12:00 pm | Technical Session B |
| 8:30 am-9:10 am | Technical Sessions B-1 |
| 9:15 am-9:55 am | Technical Sessions B-2 |
| 10:00 am-10:30 am | Break (<i>Exhibit Hall</i>) |
| 10:35 am-11:15 am | Technical Sessions B-3 |
| 11:20 am-12:00 pm | Technical Sessions B-4 |
| 12:00 pm-1:20 pm | Business Lunch (<i>Exhibit Hall</i>) |
| 1:30 pm-5:00 pm | Technical Session C |
| 1:30 pm-2:10 pm | Technical Sessions C-1 |
| 2:15 pm-2:55 pm | Technical Sessions C-2 |
| 3:00-3:30 pm | Break (<i>Exhibit Hall</i>) |
| 3:35 pm-4:15 pm | Technical Sessions C-3 |
| 4:20 pm-5:00 pm | Technical Sessions C-4 |
| 5:00 pm-6:00 pm | Women of Water Happy Hour (<i>The Office Lounge at the Hilton Garden Inn</i>) |
| 6:00 pm-8:00 pm | Banquet and Awards (<i>Ballroom</i>) |

FRIDAY, APRIL 26, 2024

| | |
|-------------------------|--|
| 7:00 am-8:30 am | WEAU Board Meeting |
| 8:00 am-8:30 am | Continental Breakfast (<i>Lobby</i>) |
| 8:30 am-11:35 am | Technical Session D |
| 8:30 am-9:10 am | Technical Sessions D-1 |
| 9:15 am-9:55 am | Technical Sessions D-2 |
| 9:55 am-10:10 am | Break |
| 10:10 am-10:50 am | Technical Sessions D-3 |
| 10:55 am-11:35 am | Technical Sessions D-4 |
| 11:40 am | Final Raffle |

THANK YOU, CONFERENCE SPONSORS



2024 WEAU ANNUAL CONFERENCE

PRE-CONFERENCE WORKSHOP

Tuesday, April 23 | 8:00 am-12:00 pm

The Pre-Conference Workshop will consist of a Microbiology and Microscope class with Steve Leach, a prominent wastewater protozoologist. A boxed lunch will be provided following the workshop.

OPS CHALLENGE

Tuesday, April 23

9:00 am: Set-up in the exhibit hall (not mandatory)

1:00 pm: Process test (or earlier if all teams have arrived)

Wednesday, April 24

7:30 am: Question and answer period

8:00 am: Competition begins: Collections, Lab, Maintenance, & Safety

6:00 pm: Ops Challenge & YP Social (Note that this event is open to Ops Challenge participants/volunteers and YPs ONLY – you must register to attend.)

Thursday, April 25

6:00 pm: Awards banquet

YOUNG PROFESSIONALS

Tuesday, April 23

1:30 pm-4:30 pm: Mountain Bike Ride and YP Hike, sponsored by RMNASTT

Wednesday, April 24

12:00 pm-1:30 pm: Networking Lunch

6:00 pm-8:00 pm: Ops Challenge and YP Social (*BigShots Golf*)

(Note that this event is open to Ops Challenge participants/volunteers and YPs ONLY – you must register to attend.)

Thursday, April 25

12:00 pm-1:30 pm: Networking Lunch

Friday, April 26

10:10 am-11:35 am: YP Technical Track

YP AND RMNASTT HIKE AND MOUNTAIN BIKE RIDE TO REPLACE SPORTING CLAYS EVENT IN 2024

Purgatory Clay Sports will not be available on Tuesday, April 23rd, 2024 for what would normally be the annual Rocky Mountain chapter of the North American Society of Trenchless Technologies (RMNASTT) Sporting Clay Event due to preparations needed for the triennial 2024 Utah State Sporting Clays Championship (April 25-28). We'll miss not getting to see everybody that would attend and help this year, but we will be back in 2025.

So, instead of hosting the sporting clay shoot, RMNASTT is joining with the WEAU Young Professionals to sponsor a mountain bike ride and hike! Participants can enjoy a hosted lunch at the conference center on Tuesday, April 23, 2024, at 1:30 pm and then depart for either a ride or a hike.

The ride will take place at the Bear Claw Poppy trails at 2:30 pm to 4:30 pm. The event is open to all conference attendees and will include rides for beginner, intermediate, and advanced riders. There is no cost to attend, and riders will be able to sign up on the RMNASTT website.

The hike will take place at Scout Cave Trail. There will be no cost to attend, and hikers will be able to sign up on the RMNASTT website.

There will be some sweet swag for riders and hikers available on Tuesday at lunch. We're also planning a raffle and will present gift cards to the winners at the luncheon on Wednesday.

Sincerely,
RMNASTT and WEAU YPs



WEAU ANNUAL GOLF TOURNAMENT

FORMAT:

Four-person scramble

WHEN:

Tuesday, April 23, 2024
Shotgun start at 1:30 pm

WHERE:

Sunbrook Gold Course, St. George, UT

GREEN FEES:

\$75.00 per person (includes cart and lunch)

LUNCH:

Box lunches and drink provided (available starting at noon)

CONTACT:

Jeff Beckman
Bowen, Collins, & Associates
154 East 14075 South
Draper, UT 84020
jbeckman@bowencollins.com
801-495-2224

Registration forms and fees are due by April 11, 2023

Register online at www.wEAU.org or contact Jeff Beckman at 801-495-2224 with questions. We will match single players to fill foursomes.



TECHNICAL PROGRAM SCHEDULE

WEDNESDAY, APRIL 24, 2024

| 12:00 pm to 1:30 pm | OPENING AWARDS/LUNCH | | | | | |
|---------------------|---|--|---|---|--|--|
| | Entrada A | Entrada B | Entrada C | Sunbrook A | Sunbrook B | Sunbrook C |
| Topic | FUNDING | WATER QUALITY | WASTEWATER FACILITIES | NUTRIENT REMOVAL | PUBLIC INVOLVEMENT/ OUTREACH | RESIDUALS AND BIOSOLIDS |
| 1:30 pm to 2:10 pm | <p>External Funding vs Private Market: Ins and Outs and Considerations</p> <p>Seema Chavan, Brown and Caldwell</p> | <p>Relocate, Reline, and/or Raise Lagoons to Protect Groundwater</p> <p>Jonathan Farrell, J-U-B Engineers, Inc.</p> | <p>Real World Considerations for Pump Design, Operation, and Troubleshooting</p> <p>Steve Truitt, Penn Valley Pump Company</p> | <p>Upgrading Lagoon Based Treatment Systems to Meet More Stringent Limits for BOD, TSS, and Nutrient Removal</p> <p>Tom Birkeland, Lemna Environmental Technologies</p> | <p>Blue Stakes: What You Don't Know But Should</p> <p>Spence Felsted, Blue Stakes of Utah 811</p> | <p>Electrochemical Oxidation for PFAS Destruction: A Municipal Drinking Water Utility Case Study</p> <p>Zia Klocke, PE, Ovivo</p> |
| Topic | OPERATIONS | WATER QUALITY | WASTEWATER FACILITIES | NUTRIENT REMOVAL | COLLECTION SYSTEMS | RESIDUALS AND BIOSOLIDS |
| 2:15 pm to 2:55 pm | <p>The Rising Cost of Water Treatment Chemicals in a Post-Covid World</p> <p>Gregory Page, Neo Water Treatment</p> | <p>Antidegradation Review 101</p> <p>Nicholas von Stackelberg, Utah Department of Environmental Quality</p> | <p>Filamentous and Sludge Blankets; BioMag Saves the Day!</p> <p>Richard Liebhaber, Evoqua/Xylem</p> | <p>Loop MBR: Cost, Energy, and Space-Saving Cyclical Step Feed MBR Process with Uniquely High Denitrification Rate</p> <p>Brian Codianne, Kubota Membrane USA</p> | <p>Pinpointing Infiltration and Inflow (I&I) Using High Density Sensor Networks</p> <p>Eric Petersen, RH Borden</p> | <p>Unveiling the Science of Polymer Activation: Exploring the Benefits through Applications</p> <p>Jeff Rhodes, Cleanwater1</p> |
| 3:00 pm to 3:30 pm | BREAK | | | | | |
| Topic | INDUSTRIAL WASTEWATER | SUSTAINABILITY | WASTEWATER FACILITIES | NUTRIENT REMOVAL | COLLECTION SYSTEMS | RESIDUALS AND BIOSOLIDS |
| 3:35 pm to 4:15 pm | <p>Design Build Industrial WWTP in Idaho Reclaims 80% of Their Wastewater</p> <p>Doug Schmits, Haskell</p> | <p>Pure Oxygen-Based Wastewater Treatment: What We Know So Far</p> <p>Ramesh Goel, University of Utah</p> | <p>Protective Coatings for Anaerobic Digestors</p> <p>Brian Cheshire, Tnemec Co.</p> | <p>Sludge Settability Control Strategy Using Migrating Carriers and Hydrocyclones</p> <p>Sage Change, Arxtera</p> | <p>Reducing Life Cycle Costs for Wastewater Pumping Systems</p> <p>Aaron Terry, Xylem/Flygt</p> | <p>Diamond Bearings: Zero Maintenance and Zero Lubrication for Draft Tube Sludge Mixers</p> <p>Brian Mitchell, WesTech</p> |
| Topic | INDUSTRIAL WASTEWATER | SUSTAINABILITY | WASTEWATER FACILITIES | NUTRIENT REMOVAL | COLLECTION SYSTEMS | RESIDUALS AND BIOSOLIDS |
| 4:20 pm to 5:00 pm | <p>DAF Bench Test Demonstration</p> <p>Brian Mitchell, WesTech</p> | <p>Nanobubbles: Small Bubbles with Big Benefits</p> <p>Marc Hatfield, EcoVerde Technologies</p> | <p>Solar Drying of Municipal Sludge and Options For Odor Control</p> <p>Dieter Weinert, Huber Technology, Inc.</p> | <p>Organic Phosphate, Polyphosphate, and Orthophosphate Precipitation Within Waterways with Aluminum, Iron, and Rare Earth Metal Solutions</p> <p>Jeff Zidek, Thatcher Company</p> | <p>Understanding Concrete Corrosion in Sewer Infrastructure: Prevention and Rehabilitation</p> <p>Brandon Tremelling, Geneva Pipe & Precast</p> | <p>Anaerobic, Aerobic or Both? Digestion Options and Optimization</p> <p>Matthew Williams, Thermal Process Systems</p> |

TECHNICAL PROGRAM SCHEDULE

THURSDAY, APRIL 25, 2024 - AM

| 8:00 am to 8:30 am | REGISTRATION | | | | | |
|----------------------|----------------------|--|---|---|---|---|
| | Entrada A | Entrada B | Entrada C | Sunbrook A | Sunbrook B | Sunbrook C |
| Topic | OPERATIONS TEST PREP | OPERATIONS | WASTEWATER FACILITIES | UTILITY MANAGEMENT | COLLECTION SYSTEMS | MISCELLANEOUS |
| 8:30 am to 9:10 am | | Operations During Construction: CWSID's UV Conversion Project Richard Whittaker, CWSID | The Long Journey to a New River Outfall Craig Anderson, Consor | RNG: How WSSC Water Maximizes their Biogas Value John Willis, Brown and Caldwell | Lessons Learned from CIPP Lining 7.5 Miles of Sewer Trunk Line Steven Meyer, Bowen Collins & Associates | SHISTORY 101: Understanding the Backdropping and Context for Why We Do What We Do with Doo-doo Bryan Mansell, Central Valley Water Reclamation Facility |
| Topic | OPERATIONS TEST PREP | OPERATIONS | WASTEWATER FACILITIES | UTILITY MANAGEMENT | COLLECTION SYSTEMS | RESIDUALS AND BIOSOLIDS |
| 9:15 am to 9:55 am | | ANITA Mox Side Stream Nitrogen Removal System: An Operator's Point of View Dustin Gloor, Central Valley Water Reclamation Facility | Foundation of Construction Nicholas Tilson, Sundt/PCL | A Utility Diagnostic Approach That Supports Leadership Development in an Evolving Workforce Benjamin Stanford, Hazen and Sawyer | Corrosion Protection for Concrete Structures 101: A Product Exploration Justin Brewer, Consor | PFAS in Biosolids: Research, Regulations, and Treatment Options Katherine Bell, Brown and Caldwell |
| 10:00 am to 10:30 am | BREAK | | | | | |
| Topic | OPERATIONS TEST PREP | OPERATIONS | WASTEWATER FACILITIES | PROCESS CONTROL | COLLECTION SYSTEMS | RESIDUALS AND BIOSOLIDS |
| 10:35 am to 11:15 am | | The Long Road to Adjusting Manholes Efficiently Josh Surratt, Snyderville Basin Water Reclamation District | Can We Get 10 More Years Out of Our Facility? MWD Invests in Condition Assessment and Process Modeling to Find Out Madison Bertoch, Stantec | Emerging Technologies for Digital Transformation in Control Systems Jason Whitesock, Advanced Engineering and Environmental Services, LLC | Material Selection for Earthquake Resilience in Wastewater Force Mains Brittany Sorenson, Brown and Caldwell | Breaking the PFAS Cycle, Disposal Issues and Destruction Technologies Brian Hiltz, CDM Smith, Inc. |
| Topic | OPERATIONS TEST PREP | OPERATIONS | WASTEWATER FACILITIES | PROCESS CONTROL | COLLECTION SYSTEMS | RESIDUALS AND BIOSOLIDS |
| 11:20 am to 12:00 pm | | TBD | Central Valley Water's Plant Remodel, So Far Kevin Gallagher, Central Valley Water | Intense from Day 1: Startup and Optimization of the Logan Regional Wastewater Facility Craig Ashcroft, Carollo Engineers | Walking The Line: A New Sewer Collection System Model and Growth Strategy for Cedar City During an Uncertain Time Jessica Jibrin, Stantec | Strategic Biosolids Master Planning in an Uncertain Future Kristin O'Neill, Brown and Caldwell |
| 12:00 pm to 1:20 pm | BUSINESS LUNCH | | | | | |

TECHNICAL PROGRAM SCHEDULE

THURSDAY, APRIL 25, 2024 - PM

| | Entrada A | Entrada B | Entrada C | Sunbrook A | Sunbrook B | Sunbrook C |
|--------------------|----------------------|------------|---|---|--|--|
| Topic | OPERATIONS TEST PREP | OPERATIONS | WASTEWATER FACILITIES | DIGITAL WATER | COLLECTION SYSTEMS | RESIDUALS AND BIOSOLIDS |
| 1:30 pm to 2:10 pm | | TBD | <p>Facility Planning and MOP 28: What to Consider in Your Next Facility Plan</p> <p>Keli Callahan, Stantec</p> | <p>Unlocking SCADA Data: A Playbook for Leveraging Operational Technology for Enterprise Optimization</p> <p>Klint Fletcher, Hazen and Sawyer</p> | <p>Asset Management Planning for Sewer Collection Systems</p> <p>Wyatt Andersen, Bowen Collins & Associates</p> | <p>PFAS Biosolids Regulations and Technology Alternatives</p> <p>Kelsey Wagner, Advanced Engineering and Environmental Services, LLC</p> |
| Topic | OPERATIONS TEST PREP | OPERATIONS | WASTEWATER FACILITIES | DIGITAL WATER | COLLECTION SYSTEMS | RESIDUALS AND BIOSOLIDS |
| 2:15 pm to 2:55 pm | | TBD | <p>Plant Hydraulics 101: Flow Splitting Basics</p> <p>Amanda Stoudt, Brown and Caldwell</p> | <p>Cybersecurity: Topics in Securing Our OT Networks</p> <p>Jason Stansfield, North Davis Sewer District</p> | <p>Wow, That Stinks</p> <p>Mark Cummings, Consor</p> | <p>Phosphorus Management Approach Following Anaerobic Digestion at SLC's New WRF</p> <p>Grant Davies, AECOM</p> |
| 3:00 pm to 3:30 pm | BREAK | | | | | |
| Topic | OPERATIONS TEST PREP | OPERATIONS | WASTEWATER FACILITIES | DIGITAL WATER | COLLECTION SYSTEMS | RESIDUALS AND BIOSOLIDS |
| 3:35 pm to 4:15 pm | | TBD | <p>Pump Intake Design: The Balance of Conservatism and Practicality for Lifting 100 MGD at Timpanogos' WRF</p> <p>Alexandre Crozes, Carollo Engineers, Inc.</p> | <p>Let's be Smart about Smart Devices: Case Study of Smart Bucket Implementation at CVWRF</p> <p>Andrew Larsen, Central Valley Water Reclamation Facility (CVWRF)</p> | <p>Cobbles, Gravel, Groundwater, Minimal Cover, UPRR, RailPros, UDOT, petroleum lines, NO PROBLEM! (Lessons Learned Successfully Crossing UPRR / UDOT Using Step-Up Pilot-Tube Guided Pipe Ramming)</p> <p>Michael Fisher, Water Works Engineers</p> | <p>Gain More Digestion Capacity with an Eye on the Future</p> <p>Mohammad Abu-Orf, Hazen and Sawyer</p> |
| Topic | OPERATIONS TEST PREP | OPERATIONS | WASTEWATER FACILITIES | DIGITAL WATER | ASSET MANAGEMENT | RESIDUALS AND BIOSOLIDS |
| 4:20 pm to 5:00 pm | | TBD | <p>Walking a Fine Line: A Balanced Approach to Equipment Selection</p> <p>Nate Rogers, Bowen Collins & Associates</p> | <p>SCADA Alarm Health Analysis</p> <p>Jason Israelsen, APCO</p> | <p>Unveiling a Business Intelligence (BI) Solution to Support Proactive Asset Lifecycle Investment</p> <p>Sean Pour, Hazen and Sawyer</p> | <p>Application of the Microbial Hydrolysis Process on an Existing Anaerobic Digestion System</p> <p>David Parry, Jacobs</p> |

TECHNICAL PROGRAM SCHEDULE

FRIDAY, APRIL 26, 2024

| 8:00 am to 8:30 am | REGISTRATION | | | | | |
|----------------------|----------------------|--|---|--|---|--|
| | Entrada A | Entrada B | Entrada C | Sunbrook A | Sunbrook B | Sunbrook C |
| Topic | OPERATIONS TEST PREP | WASTEWATER SURVEILLANCE | LEADERSHIP | OPERATIONS | NUTRIENT REMOVAL | PROJECT DELIVERY |
| 8:30 am to 9:10 am | | Wastewater Surveillance (2-4) Jennifer Sabitzer, WEF | Leadership/ Management Mike Chambers, Ash Creek Special Service District | When Chemistry and Physics Collide Anthony Daw, CVWRF (Retired) | Algae Nutrient Removal at South Davis: What Happened Brad Rasmussen, Aqua Engineering | Navigating a Construction Boom, Commodity Shortages, and Other Fascinating Tales Brandon Heidelberger, Central Valley Water Reclamation Facility |
| 9:15 am to 9:55 am | | Wastewater Surveillance (2-4) Jennifer Sabitzer, WEF | Putting the We in WEF: Investing in the Potential of Our Membership Clint Rogers, Stantec | When Chemistry and Physics Collide Anthony Daw, CVWRF (Retired) | A City's Strategy for Addressing Total Phosphorus Effluent Limits William Leaf, Jacobs | Procurement Nicholas Tilson, Sundt/PCL |
| 9:55 am to 10:10 am | BREAK | | | | | |
| Topic | OPERATIONS TEST PREP | WASTEWATER SURVEILLANCE | YOUNG PROFESSIONALS | MISCELLANIOUS | NUTRIENT REMOVAL | PROJECT DELIVERY |
| 10:10 am to 10:50 am | | Wastewater Surveillance (2-4) Jennifer Sabitzer, WEF | Harnessing the Power of the YP Katie Reams and Lauren Schmidt, J-U-B Engineers | How to Read Construction Drawings Mike Kobe, Brown and Caldwell and Navneet Prasad, Central Valley WRF | Optimization of a Westbank Secondary Process for dPAO Selection Jenny Calderon, Water Works Engineers | Cost Transparency Drive Project Success Matt Williams, Haskell |
| 10:50 am to 11:35 am | | Student Presentation Jennifer Sabitzer, WEF | Harnessing the Power of the YP Katie Reams and Lauren Schmidt, J-U-B Engineers | | Onsite Biological Nutrient Removal Piloting: Benefits, Challenges, and Lessons Learned Kirsten Muehlbrad, AECOM | Modeling New Capital Projects: The Power of BIM Monika Surasani, Skyline Electric Company |
| 11:40 am | FINAL RAFFLE | | | | | |



WAY TO GO!

Congratulations 2023 Award Nominees



Austin Petersen
Brian Lamar
Colby Swanson
Colby Willoughby
Colton Campbell
Dallas Henline
Darin Clark
Dustin Walton
Dylan Thomas
Eric Nemcek
Gary Willcox
Halima Yarow

Heath Ruesch
Jacob Scott
James Belcher
James Magill
Jayce Bahr
Joshua Hunsaker
John Gallagher
Katie Reams
Kevin Hewitt
Lyndon Tan
Mark Campbell
Marty Marsing

Matt Goodrich
Meagan O'Hare
Nathan Fife
Ned Miner
Paul Pope
Richard Whittaker
Robert Whimpey
Taigon Worthen
Tim Lindsay
Trevor Andra




Ash Creek Special Service District
Central Valley Water Reclamation Facility
South Valley Water Reclamation Facility
Morgan City
North Davis Sewer District
Central Weber Sewer Improvement District
Jordan Basin Water Reclamation Facility
Magna Water District
Eagle Mountain City
East Canyon Water Reclamation Facility
Orem City Water Reclamation Facility

Thank you to everyone that submitted nominations, everyone that interviewed the nominees, and everyone that supported the WEAU Awards Committee.



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WHAT DOES AI KNOW? (ABOUT PFAS)

Intro and prompts by Ben Skousen, and responses by ChatGPT and Copilot

Welcome back *Digested News* readers. This is the fourth installment of our series about artificial intelligence (AI), written mostly by AI. If you recall, this series uses AI to learn more about AI. The first three installments have used a conversational AI called ChatGPT. Let me remind you that ChatGPT works on a prompt/response basis. Basically, the user (me) provides a prompt, and the AI (ChatGPT) responds in a natural way using information found on the internet.

However, as mentioned in our first installment, Apple, Google, Meta, Microsoft, and others are all working on their own AI code. Recently, Microsoft has begun to integrate AI into Windows 11, Office software, the Edge web browser, and more. Microsoft calls its AI “Copilot.” This begs the question, what are the differences between ChatGPT and Copilot? Using PFAS as a subject, I’ll provide the same prompt to ChatGPT and Copilot, and you can compare the responses. Let’s get started.

PROMPT (Ben): What are PFAS?

RESPONSE (ChatGPT): PFAS stands for Per and Polyfluoroalkyl Substances, which are a group of man-made chemicals used in a variety of industries due to their ability to repel water, grease, and oil. They are often found in products such as non-stick cookware, stain-resistant fabrics, firefighting foam, and food packaging materials.

PFAS have gained attention due to their persistence in the environment and potential adverse health effects. These chemicals do not break down easily and can accumulate in the environment and in the bodies of humans and animals.

References:

US Environmental Protection Agency (EPA). “Basic Information on PFAS.” [Online] Available: www.epa.gov/pfas/basic-information-pfas
Centers for Disease Control and Prevention (CDC). “Per- and Polyfluoroalkyl Substances (PFAS) Factsheet.” [Online] Available: www.atsdr.cdc.gov/pfas/overview.html

RESPONSE (Copilot): PFAS stands for per and polyfluoroalkyl substances, a group of man-made chemicals that resist grease, oil, water, and heat.¹ They were first used in the 1940s and are now in hundreds of products, such as stain- and water-resistant fabrics, cleaning products, paints, and fire-fighting foams.² Some PFAS can accumulate and stay in the human body for long periods of time, and scientific studies have shown that exposure to some PFAS may be linked to harmful health effects in humans and animals.^{1,3} EPA and other agencies are working to address PFAS and reduce the risks to human health and the environment.^{1,4}

1: PFAS Explained | US EPA

2: Per- and Polyfluoroalkyl Substances (PFAS) | FDA

3: Per- and Polyfluorinated Substances (PFAS) Factsheet

4: Per- and Polyfluoroalkyl Substances (PFAS) | US EPA

PROMPT (Ben): Why are PFAS a concern in water and wastewater?

RESPONSE (ChatGPT): PFAS are a concern in water and wastewater due to their persistence, bioaccumulation, and potential adverse health effects. These chemicals can enter water sources through various pathways, including industrial discharge, firefighting foam, landfills, and wastewater treatment plants. Once in the water, PFAS can accumulate in aquatic organisms and persist in the environment for a long time.

The concern with PFAS in water and wastewater arises from their potential to contaminate drinking water sources and ecosystems, posing risks to human health and the environment. Studies have linked exposure to certain PFAS compounds with adverse health effects such as cancer, reproductive problems, and immune system dysfunction.

References:

US Environmental Protection Agency (EPA). “PFAS Contamination Site: Overview.” [Online] Available: www.epa.gov/pfas/pfas-contamination-site-overview
US Geological Survey (USGS). “Per and Polyfluoroalkyl Substances (PFAS) in the Environment.” [Online] Available: www.usgs.gov/faqs/per-and-polyfluoroalkyl-substances-pfas-environment?qt-news_science_products=0#qt-news_science_products

RESPONSE (Copilot): PFAS are a concern in water and wastewater because they can contaminate drinking water sources, affect aquatic ecosystems, and pose potential health risks to humans and animals.^{1,2} PFAS are very persistent and mobile in the environment, and can travel long distances through groundwater or surface water.³ Some PFAS can also bioaccumulate in fish and wildlife, and transfer to humans through the food chain. Exposure to high levels of some PFAS may cause adverse effects such as increased cholesterol, reduced immune response, thyroid dysfunction, and cancer.

- 1: EPA Announces Plans for New Wastewater Regulations, Including First Limits for PFAS, Updated Limits for Nutrients
- 2: PFAS Treatment in Drinking Water and Wastewater – US EPA
- 3: EPA Announces Plans for Wastewater Regulations and Studies, Including Limits for PFAS, New Study on Nutrients: Per and Polyfluorinated Substances (PFAS) Factsheet: Per and Polyfluoroalkyl Substances (PFAS) | US EPA

PROMPT (Ben): What are the potential health effects from PFAS?

RESPONSE (ChatGPT): The potential health effects from PFAS exposure include various adverse impacts on human health, ranging from developmental effects to immune system dysfunction. Some of the potential health effects associated with PFAS exposure include:

1. Increased cholesterol levels
2. Reproductive and developmental issues
3. Effects on the immune system
4. Cancer (e.g., testicular, kidney, thyroid)

These health concerns have been documented in numerous epidemiological and toxicological studies.

References:

- Agency for Toxic Substances and Disease Registry (ATSDR). "Toxicological Profile for Perfluoroalkyls." [Online] Available: www.atsdr.cdc.gov/toxprofiles/tp200-c1.pdf
- US Environmental Protection Agency (EPA). "Basic Information on PFAS." [Online] Available: www.epa.gov/pfas/basic-information-pfas
- National Institute of Environmental Health Sciences (NIEHS). "Per and Polyfluoroalkyl Substances (PFAS)." [Online] Available: www.niehs.nih.gov/health/topics/agents/pfas/index.cfm

RESPONSE (Copilot): Some of the potential health effects from PFAS exposure are:

- Increased cholesterol levels^{1,2}
- Lower antibody response to some vaccines^{1,2}
- Changes in liver enzymes^{1,2}
- Pregnancy-induced hypertension and preeclampsia^{1,2}
- Small decreases in birth weight^{1,2}
- Kidney and testicular cancer^{1,2}
- Altered metabolism³
- Reduced fertility³
- Increased risk of being overweight or obese³
- Reduced ability of the immune system to fight infections⁴
- Thyroid problems⁴
- A higher chance of some cancers⁴

These health effects may depend on the dose, frequency, route, and duration of exposure, as well as individual factors and other determinants of health.¹ More research is needed to understand how PFAS exposure may affect illness from COVID-19¹ and other diseases.

- 1: Potential health effects of PFAS chemicals | ATSDR
- 2: Our Current Understanding of the Human Health and Environmental Risks of PFAS | US EPA
- 3: National Institute of Environmental Health Sciences
- 4: PFAS: What to Know About 'Forever Chemicals' – WebMD

PROMPT (Ben): What can wastewater treatment plants do about PFAS?

RESPONSE (ChatGPT): Wastewater treatment plants can employ various methods to mitigate the presence of PFAS in wastewater. These methods include advanced treatment techniques such as activated carbon filtration, ion exchange, membrane filtration, and advanced oxidation processes.

Activated carbon filtration is particularly effective in removing PFAS from water by adsorption onto the surface of the carbon particles. Ion exchange involves replacing PFAS ions with less harmful ions on the surface of resin beads. Membrane filtration processes, such as reverse osmosis, can effectively remove PFAS by physically blocking their passage through a semipermeable membrane. Advanced oxidation processes involve the use of chemical reactions to degrade PFAS molecules into less harmful substances.

These treatment methods can help reduce the concentration of PFAS in wastewater, thereby minimizing the risk of contamination of water sources and potential exposure to humans and the environment.

Reference:

- US Environmental Protection Agency (EPA). "Treatment Technologies for Removing PFAS." [Online] Available: www.epa.gov/pfas/treatment-technologies-removing-pfas

RESPONSE (Copilot): Wastewater treatment plants (WWTPs) can take several actions to reduce the presence and impact of PFAS in water and wastewater. Some of these actions are:

- Monitor the influent and effluent of WWTPs for PFAS levels and identify the sources of PFAS contamination.^{1,2}
- Implement best management practices to prevent or minimize the discharge of PFAS from industrial sources, such as pretreatment, pollution prevention, and source control.^{1,2}
- Use advanced treatment technologies to remove PFAS from drinking water and wastewater, such as activated carbon, ion exchange, reverse osmosis, nanofiltration, and advanced oxidation.^{2,3} These technologies vary in their effectiveness, cost, and feasibility depending on the type and concentration of PFAS, the water quality, and the treatment goals.^{2,3}
- Explore alternative disposal or destruction methods for PFAS-containing waste, such as landfilling, incineration, pyrolysis, gasification, or chemical treatment.^{1,4} These methods have different advantages and disadvantages in terms of environmental impact, energy consumption, and regulatory compliance.^{1,4}
- Collaborate with other stakeholders, such as federal and state agencies, research institutions, industry associations, and public health organizations, to share information, data, and best practices on PFAS management.^{1,2}
 - 1: EPA Announces Plans for New Wastewater Regulations, Including First Limits for PFAS, Updated Limits for Nutrients
 - 2: PFAS Treatment in Drinking Water and Wastewater – US EPA
 - 3: Reducing PFAS in Drinking Water with Treatment Technologies
 - 4: Potential PFAS Destruction Technology: Pyrolysis and Gasification

PROMPT (Ben): Can I test my water for PFAS?

RESPONSE (ChatGPT): Yes, you can test your water for PFAS. There are various commercial laboratories and testing facilities that offer water testing services specifically for PFAS contamination. You can contact your local health department or environmental agency for information on where to find certified laboratories that conduct PFAS testing.

Additionally, some states and municipalities offer free or subsidized water testing programs for PFAS, especially in areas where PFAS contamination is known or suspected.

References:

US Environmental Protection Agency (EPA). "PFAS: Testing for PFAS."

[Online] Available: www.epa.gov/pfas/testing-pfas

Centers for Disease Control and Prevention (CDC). "PFAS and Your Health: Testing for PFAS in Drinking Water." [Online] Available:

www.atsdr.cdc.gov/pfas/pfas-testing.html

RESPONSE (Copilot): Yes, you can test your water for PFAS using certified laboratories and validated methods. The EPA recommends contacting your state to learn if they have state certified laboratories to test for PFAS.¹ For drinking water, the EPA recommends using an EPA validated testing method, such as Method 533, 537, or 537,¹ which can measure 29 PFAS in drinking water.^{1,2} These methods use liquid

chromatography and mass spectrometry to separate and identify the PFAS compounds in water samples.² You can also use DIY test kits that allow you to collect water samples and send them to a laboratory for analysis.³ However, these kits may vary in their accuracy, reliability, and cost, so you should check the reviews and ratings before buying them.³

1: EPA PFAS Drinking Water Laboratory Methods | US EPA

2: (PFAS) Laboratory Testing Primer for State Drinking Water Programs

3: PFAS Water Testing: Which Water Test is Best for PFAS?

CONCLUSION:

As you can see, the responses from ChatGPT and Copilot are very similar. Both typically cited the same sources, but Copilot used additional sources. ChatGPT provided a more academic style citation while Copilot provided button style links that didn't copy and paste well. ChatGPT was also much faster than Copilot to generate responses. Keep in mind that Microsoft owns a large share of OpenAI, the developer of ChatGPT. Copilot shares some of the ChatGPT code. Other AIs could have vastly different responses.

2024 is being called the year of AI. Increasingly, it will show up on our computers, phones, in office software, and more. It will even get a dedicated keyboard button if you buy a new Windows-based computer. Thanks for reading!

Here is the link to the ChatGPT session:

<https://chat.openai.com/share/57ab684a-7a60-4624-9777-9595da2e3003>

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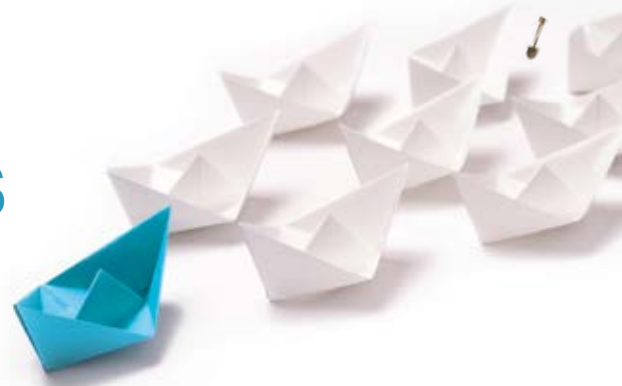
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WEAU's 2024 Leadership Series



By Mike Chandler

In my last article I shared the following statistics:

- 75% of organizations believe they are not effective in developing their leaders.
- 71% of organizations do not believe their current leaders will help them navigate successfully into the future.

I found these two data points very discouraging. My first observation was that even with abundant information and increasingly effective methods for training leaders, we continue to struggle implementing the necessary changes into our work/life routines. Secondly, I was discouraged to see that of the organizations polled, they had very little faith in their current leaders' abilities. My first thought was we can be better and do better.

We are just three workshops away from completing our first year-long leadership series of trainings. For the 48 individuals who signed up to be in our first cohort of leadership training I want to express my sincere thanks. In the first six modules we covered significant personal and team performance issues. For me personally, presenting the information and participating in discussions with this first group of attendees has been significantly transformative. We have great people here at WEAU on both a personal and team level.

Leadership, in essence, is influence. When influence is leveraged to increase the likelihood of positive outcomes, we experience increasing levels of success.

Leadership, in essence, is influence. When influence is leveraged to increase the likelihood of positive outcomes, we experience increasing levels of success. When success is engrained in the genetic code of our organizations, we see a change in institutional culture that multiplies success. Influence can be generated from any level of an organization. As I have quoted before, "The reality is that 99% of all leadership occurs not from the top but from the middle of an organization. Usually, an organization has only one person who is the leader. So, what do you do if you are not that one person?" (*The 360° Leader*, John Maxwell).

Beginning this spring we are happy to announce that we will begin a new leadership training series beginning in June 2024 and continuing through April 2025. In addition to offering a training opportunity for our many members along the Wasatch Front, we will also be offering a Southern Utah option, hosted at the Ash Creek Special Service District in Hurricane, UT. My hope is that we can provide this training to as many WEAU members as possible and improve the success of each of our member organizations. Details regarding enrollment will be provided at this year's Annual Conference. [DA](#)

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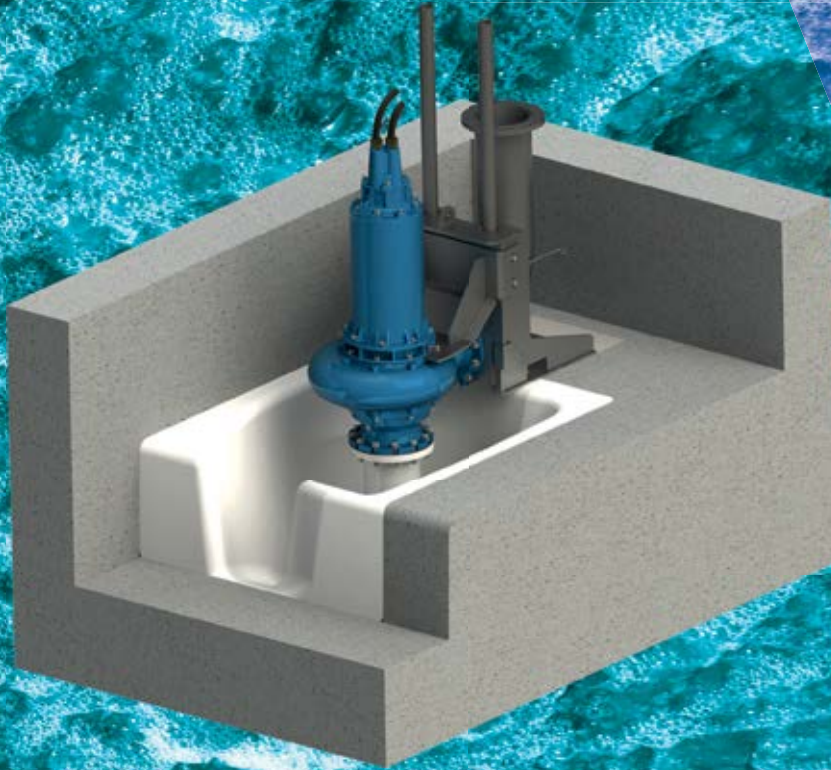


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Apply for the Quarter Century Operator Club

WEAU would like to make all of those that work in the wastewater field aware of the requirements to be eligible for the Quarter Century Operator Club.

The Quarter Century Operator Club recognizes operators of wastewater treatment facilities for their service and dedication in a difficult and dangerous profession. The Club was created under the sponsorship of Frank Woodbury Jones, who served as the Clubs' first registrar.

Eligibility Criteria:

- Member of WEF for a minimum of five consecutive years immediately preceding application.
- Significant, full-time participant in the water environment profession for a minimum of 25 years.
- 10 years of which must have been in active participation in the day-to-day collections, maintenance, operations, laboratory, or management of a wastewater transportation or treatment facility.
- Completed and signed application (found on the WEF website under Quarter Century Operator Club).

Applications Accepted By:

WEF Professional Wastewater Operations Members

Email or Mail Applications to:


Water Environment Federation Awards Program

Email: Tori Cox (tcx@wef.org)

Manager, Association Engagement

601 Wythe Street, Alexandria VA 22314

Phone: 703-684-2400 (Ext. 7070)

If you have questions and want to talk to a local, feel free to reach out to Chad Burrell at cburrell@sbwrld.org or 435-659-5805. If the application is approved by WEF in time for the WEAU Annual Conference, recipients will be recognized at the conference. You may choose to have the award mailed to Chad Burrell so he has it for the presentation at the conference (SBWRD, Chad Burrell, 2800 Homestead Road, Park City, UT, 84098). 

Apply for an Operator Scholarship

The purpose is to provide funding for individuals who are seeking water sector operator education, training, or certification to enter the industry or to advance their knowledge, skills, abilities or license.

Application Requirements and Criteria:

1. Individuals seeking an entry-level operator's license
2. Or, an entry or experienced operator seeking professional development in the following areas:
 - a. Municipal and industrial treatment
 - b. Reuse
 - c. Collection and distribution
 - d. Stormwater
3. Completed online application (<https://wef.secure-platform.com/a/solicitations/260/home>) including a brief essay on your experience and career goals. Applications are open January 15-March 31 (close at 11:59 pm Eastern).

Scholarship to Support:


1. Education
2. Training

Scholarship Amount:

Up to \$5,000 dollars

Awardees must submit cost documentation in their application to receive funds. Applicants who are new to the industry (seeking initial certification or currently have the lowest level of certification in their state) may include WEF membership fees in their documentation costs.

View the Operator Scholarship FAQ at www.wef.org/contentassets/9afe0f9129ed47a8882af1fc92cfdd9/operator-scholarship-faq=2024.pdf.

Contact Rebecca Culhane, Manager, Awards and Scholarships at awards@wef.org or 703-684-2400 (Ext. 7070) if you have questions. 

To reach Utah's water industry professionals through the *Digested News* magazine and its targeted readership, contact Kris at your earliest convenience to discuss your company's promotional plans.

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